RECEIVED
CENTRAL FAX CENTER

FEB 15 2007

REMARKS

I. Status of the claims

Claims 2-18, 20-27, 29, and 32 were previously cancelled. With entry of the instant amendment, previously presented Claims 1, 19, 28, 30, 31, and 33-50 are pending in the above-referenced patent application. Applicants respectfully request further consideration of these Claims, in view of the amendments set forth above and the following remarks.

II. Claim Rejections under 35 U.S.C. §112

(A) The Examiner has rejected Claims 1, 19, 28, 30-31, and 33-50 under 35 U.S.C.§112, second paragraph, as allegedly being indefinite.

The Examiner states at page 3 of the office action that " 'wild type' as given in the specification is 'a precursor protein from which a variant is derived.' This definition encompasses not only those proteins that occur "naturally", but also encompasses mutant and mutant variant proteins that are themselves precursors prior to further mutation".

Applicants respectfully disagree for the following reason.

As conceded by the Examiner, "the term "wild-type" is used in the specification as a precursor protein from which a variant is derived". The specification teaches that the precursor protein (or "wild-type "protein according to the definition) is the *P. mendocina* cutinase SEQ ID NO:2. For example, at page 10, lines 14-17, the specification teaches that variants were created at amino acid positions corresponding to residue positions 57-66, 68, 85 ...of SEQ ID NO:2 in *P. mendocina* cutinase. Thus, the specification teaches that SEQ ID NO:2 in *P. mendocina* cutinase is the precursor protein (or "wild-type" by definition) from which variants of the invention were generated.

Applicants submit that the terms "wild-type *Pseudomonas mendocina* cutinase" and "wild-type *P. mendocina* cutinase" are consitent with the definition provided in the specification. Accordingly, Applicants respectfully request that the rejection of Claims 1, 19, 28, 30-31, and 33-50 under 35 U.S.C.§112, second paragraph, be withdrawn.

(B) The Examiner has rejected Claims 1, 19, 31, 34-41, 44 and 46-50 under 35 U.S.C. §112, first paragraph. The Examiner indicates that the rejection is a "new matter rejection".

The Examiner states that "the claims encompass cutinase variants having mutation at position 192 and 194 *and any other amino acid*", and "while Tables 1-3 may support specific

species of variants...the 'species' of Tables 1-3 do not support all members of the 'genus' of cutinase variants as encompassed by the claims" (see page 3 of the Office Action).

While Applicants must respectfully disagree, in order to expedite prosecution and yet without acquiescing to the Examiner's arguments, Applicants have amended Claims 1, 19, 31, 34-41, 44 and 46-50 without prejudice. The Claims have been amended to recite the specific substitution(s) that are contained in the cutinase variant(s). Support for the amendment is provided at least by the experimental results given in Tables 1, 2 and 3.

In light of the foregoing, the rejection of Claims 1, 19, 31, 34-41, 44 and 46-50 under 35 U.S.C. §112, first paragraph, should be withdrawn.

(C) The Examiner has rejected Claims 1, 19, 28, 30-31, and 33-50 under 35 U.S.C. §112, first paragraph, allegedly as failing to comply with the written description requirement.

The Examiner has interpreted the phrase "consisting essentially of" as "comprising". Based on this interpretation, the Examiner's position is "that the claimed genus of cutinase variants is not adequately described by the specification".

As discussed above, while Applicants must respectfully disagree, in order to expedite prosecution and yet without acquiescing to the Examiner's arguments, Applicant has amended Claims 1, 19, 28, 30-31, and 33-50, without prejudice. The Claims, as amended, are directed to cutinase variants "containing" specific mutations.

In light of the foregoing, the rejection of Claims 1, 19, 28, 30-31, and 33-50 under 35 U.S.C. §112, first paragraph, should be withdrawn.

(D) The Examiner has rejected Claims 1, 19, 28, 30-31 and 33-50 under 35 U.S.C. §112, first paragraph, as allegedly not meeting the enablement requirement.

The Examiner indicated that "undue experimentation is required to make and use the full scope of the claimed cutinase variants" and that "there is a high level of unpredictability in making all cutinase variants as encompassed by the claims".

While Applicants must respectfully disagree, in order to expedite prosecution and yet without acquiescing to the Examiner's arguments, Applicants have amended Claims 1, 19, 28, 30-31 and 33-50, without prejudice. As discussed above, the Claims have been amended to specify the substitution(s) that are contained in the cutinase variant(s). Support for the amendment is provided at least by the experimental results given in Tables 1, 2 and 3.

In light of the foregoing, the rejection of Claims 1, 19, 28, 30-31 and 33-50 under 35 U.S.C. §112, first paragraph, should be withdrawn.

III. Rejection under 35 U.S.C. §103(a)

In the Final Office Action mailed on April 18, 2006, the Examiner rejected Claims 1, 28, 30, 33-39 and 41-50 under 35 U.S.C. 103 (a) as being unpatentable over Poulouse et al (U.S. Patent 5,352,594).

Applicants respectfully traverse the above rejection for the following reasons.

To establish a prima facie case of obviousness, "the prior art reference (or references when combined) must teach all or suggest all the claim limitations." MPEP 2143.

Poulouse et al. teaches "methods for making and selecting esterase enzymes that have an improved perhydrolysis to hydrolysis ratio, and varying Kcat, Km, and Kcat/Km and substrate specificity" (for example, see Abstract). Poulouse et al. also teach that "an increase in Kcat/Km for one substrate may be accompanied by a reduction in another substrate" (Col. 4, lines 2-4). This fact is exemplified by the activity of mutant enzymes using different substrates as shown in the Table below Columns 11 and 12. For example, the Table clearly shows that while the mutation LYS205 increases the Kcat/Km when P-nitrophenyl acetate is the substrate, the same LYS205 mutation decreases the Kcat/Km when P-nitrophenylbutyrate is the substrate. Thus, the substitution of an amino acid in an enzyme may increase the activity of the mutant enzyme with respect to one substrate while the same substitution decreases the activity of the same mutant enzyme with respect to a different substrate. Poulouse et al. do not teach or suggest the activity of any mutant enzyme for polyester (polyesterase activity), as is required by the present claims. Therefore, Poulouse et al., do not render the present claims obvious within the meaning of 35 U.S.C. 103(a).

Based on the foregoing, Applicants respectfully request that the rejection of Claims 1, 28, 30, 33-39 and 41-50 be withdrawn.

RECEIVED
CENTRAL FAX CENTER

FEB 15 2007

CONCLUSION

In view of the foregoing claim amendments and remarks, Applicants respectfully submit that the application is now in condition for allowance. Accordingly, favorable reconsideration and early allowance is requested.

The Commissioner is authorized to charge any fees that may be required in connection with this submission and to credit any overpayments to Deposit Account No. 07-1048 (Docket No. GC724). Should the Examiner have any questions, the Examiner is encouraged to telephone the undersigned.

Respectfully submitted,

Date: February 15, 2007

Elena Quertermous, Ph.D.
Registration No. 47,873

Genencor International, Inc.
925 Page Mill Road
Palo Alto, CA 94304
Tel: 650-846-7636
Fax: 650-845-6504

PAGE 17/19 * RCVD AT 2/15/2007 6:07:20 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-2/14 * DNIS:2738300 * CSID:650 845 6504 * DURATION (mm-ss):04-52